TOOL LENDING LIBRARY

CASE STUDY – MAZZETTI

Photo credits: Walt Vernon, Mazzetti/2020

The Smart Buildings Center Tool Lending Library supported a yearlong project led by Mazzetti, a health care engineering, planning, and design firm, to study electricity use at eight hospitals across the country.

During the pandemic, Mazzetti, on behalf of the Fire Protection Research Foundation, studied electrical demand in hospitals. Although the study initially planned to look at electrical loads in multiple occupancies, after the pandemic started, Mazzetti realized there was a unique opportunity—for the first time in a hundred years, since the 1918 flu pandemic—to look at electrical loads in hospitals during a pandemic.

Mazzetti borrowed Fluke 1730 3 Phase Logging Power Meters from the Tool Lending Library (TLL) to measure electrical loads at hospital panels. These meters were installed at hospital panels and helped in conducting a robust study.

The objective of the project was ultimately to measure the electrical loads on hospital receptacle circuits and panels to understand the real receptacle load in hospitals. The data is available to the Code Making Panels of the National Electrical Code so that they might use it as they see fit to support potential changes to receptacle load demand factors for healthcare.

LET'S TALK FINDINGS

The demand factors contained in the current (2020) edition of the National Electrical Code may result in receptacle capacity between 100 percent and 700 percent larger than the maximum measured loads.

Hospital receptacle loads do not appear to vary seasonally.

Measured hospital receptacle loads were not strongly correlated with COVID-19 case data.

Study looked at several hospitals on the West Coast, Northeast and Southeast

	Location	*Beds*	*Description*
West Coast hospital 1	Northern California	500-600	Urban high-rise trauma center
West Coast hospital 2	Oregon	100-150	Urban/suburban general medical center
Southeast hospital 1	Georgia	100-150	Urban/suburban level II trauma center
Southeast hospital 2	Georgia	400-500	Urban academic medical center
Southeast hospital 3	Alabama	300-400	Urban level II trauma center
Southeast hospital 4	Alabama	300-400	Urban acute care facility
Southeast hospital 5	Georgia	900-1000	Urban high-rise level I trauma center
Northeast hospital	Massachusetts	900-1000	Urban high-rise academic medical center, level I trauma center

How Tool Lending Library helped?

As per Troy Savage, Project Manager at Mazzetti who led this study, *"The TLL provides an opportunity to get the data necessary to make informed decisions that might help people reduce energy usage. It's an invaluable resource. It's especially helpful because the resources (when available) can be accessed quickly."*

In the case of Mazzetti's research, they now have long duration data for panel level hospital receptacle (i.e. plug) load during a pandemic. This data will make it possible for code makers to have a basis to change calculation techniques for hospital electrical systems and could potentially result in large savings and reduced carbon emissions for all hospitals in the future.

Troy also emphasized, *"For us, cost-saving, time-saving, quick-access, etc. were all important. In our particular case (due to the pandemic) we kept the meters deployed for a long duration study, which also made a difference. TLL was helpful, easy to work with and flexible, all of which made our study possible. The cascading benefits of TLL are exceptional. We see TLL as a trusted partner and will use its service in the future."*

> WITHOUT THE TLL METERS WE WOULD NOT HAVE BEEN ABLE TO DO AS ROBUST OF A STUDY. WE NEEDED TO DEPLOY QUICKLY (AT THE START OF THE PANDEMIC) AND THE TLL PROVIDED THE NECESSARY EQUIPMENT.
>
> Troy Savage, Mazzetti

FLUKE 1730 3 Phase Logging Power Meters

Designed specifically for energy conscious customers, the Fluke 1730 Three-Phase Electrical Energy Logger introduces a new simplicity to discovering sources of electrical energy waste. Profiling energy usage across a facility helps identify opportunities for energy savings and provides the easy-to-understand data required to take the right action. The 1730 enables users to:

- Easily discover when and where energy is being consumed in a facility, from the service entrance to the individual circuits.
- Compare multiple data points over time and build the complete picture of energy usage with the energy analyze software package.
- Quickly understand specific points of energy loss, reduce energy bills more easily than ever.

TOOL HIGHLIGHT

The Fluke 1730 is the best choice when looking for a dedicated energy logger for performing energy surveys and load studies.

Smart Buildings Center hosts a lending "library" of diagnostic tools available to building owners and managers, as well as energy service professionals in Washington State and Oregon, for short term data collection on energy using equipment and systems in commercial and institutional buildings.

Available tools include loggers, logger sensors, power and light meters, air flow tools and more. Browse ***the tool inventory online*** *or view* ***our Tool List (PDF)****.*

WANT TO LEARN MORE? Contact us at info@smartbuildingscenter.org | 206-538-0832